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## U. S. DEPARTMENT OF AGRICULTURE,

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## RAISING DUCKS, GEESE, AND TURKEYS.

SUGGESTIONS FOR TEACHERS IN SECONDARY SCHOOLS.<sup>1</sup>By H. P. BARROWS, *Specialist in Agricultural Education.*

## INTRODUCTION.

The raising of ducks, geese, and turkeys is not one of our great agricultural industries. As phases of poultry husbandry their production does not begin to compare in magnitude to the raising of common fowls. They are important enough, however, in many sections to be considered as a phase of secondary school agriculture. As the teaching of agriculture becomes more vocational in its aim, an appreciation of subjects which afford practical home work is developed. The keeping of a flock of poultry affords the student an opportunity to apply general principles of animal husbandry and supplies a wealth of concrete experience upon which classroom instruction may be based. The suggestions which follow, while they pertain to the teaching of special branches of poultry husbandry, may be applied to the subject in a general way or to other special branches.

## RELATION OF SUBJECT TO COURSE OF STUDY.

*Relation to agricultural courses.*—In schools which give a special course in poultry husbandry considerable time may be given to the raising of ducks, geese, and turkeys by the whole class, especially in the region of large cities which afford a special market and hence a special opportunity along this line, and in sections which are especially adapted to these phases of poultry production. In schools which include poultry husbandry in a general course in animal husbandry or which give but a general course in agriculture there will not be time for the whole class to make a detailed study of methods of raising ducks, geese, and turkeys. Such courses may be adapted to the interests of individual students by assigning special practicums, projects, and subjects for reports. As the majority of the students will have a general interest in raising ducks, geese, and turkeys, the subject may be considered by the whole class according to the time available.

*Relation to other courses.*—There should be close correlation between the teaching of all phases of animal husbandry and the teaching of biology. A student who is taking care of a flock of poultry at home will make observations and gain experiences which will aid him in a study of animals in general and form a basis for a knowledge of birds in particular. The pupil who has

<sup>1</sup> Prepared under the direction of C. H. Lane, Chief Specialist in Agricultural Education, States Relations Service.

to dress fowls for market has opportunity for a study of the anatomy of birds which is preferable in many ways to laboratory dissection.

The building of poultry houses and the making of nest boxes, shipping crates, feed hoppers, and the many devices used in connection with the keeping of ducks or other fowls furnish an opportunity for the practical application of mechanic arts.

### CLASSROOM INSTRUCTION.

*Use of reference material.*—The outlines given in connection with the home projects will suggest topics for discussion arranged according to a logical sequence. Most of the questions may be answered from the study of the following Farmers' Bulletins of the United States Department of Agriculture: 697, Duck Raising, 767, Goose Raising; and 791, Turkey Raising. Each student should secure a copy of these bulletins. Those students who intend to take any one of these phases of poultry husbandry as a main project will find aid in the texts and periodicals devoted to poultry husbandry in their more extensive study. The teacher may assign topics for special investigation and study to these students and have them make either oral reports to the class or written reports to the teacher.

*Use of illustrative material.*—In a study of types and breeds the illustrations in the bulletins should be supplemented with such other good pictures of ducks, geese, and turkeys as may be obtained. Illustrations should not take the place of living fowls if such are conveniently accessible. A field trip may be made to a neighboring farm where such fowls are kept for the purpose of studying methods and equipment as well as the birds. The teacher with his class should take advantage of fairs and poultry shows in making a study of types and breeds. Some of these schools have held very successful poultry shows at which both students and patrons exhibit fowls. These shows aid in arousing interest as well as supplying material for a study of types and breeds and practice in judging.

### PRACTICUMS.

*Judging.*—In judging any of the standard breeds of ducks, geese, and turkeys the American Standard of Perfection should be used for a scale of points. If there is time to go into this work extensively comparative judging should be taken up after the students become familiar with the score card for the breeds important in the district.

*Preparing fowls for market.*—If a sufficient number of the class are interested in the production of ducks, geese, or turkeys for the market, the whole class may take part in the killing, picking, and packing of the fowls, according to the directions given in the bulletins. If but a few students are interested the work may be assigned as a home practicum to individuals.

*Running an incubator.*—Duck's eggs may be substituted for hen's eggs in the incubator in operation at the school, as suggested in Volume I, No. 5, of the Agricultural Education Monthly, Hatching and Rearing of Chicks as a Subject of Instruction in Secondary Schools. In connection with incubation, whether conducted at the school or at home, the making of an egg tester and practice in testing eggs should be required.

*Making equipment.*—The making of a poultry house is an excellent class practicum or project either for a class in animal husbandry or a class in farm mechanics or for the two classes working together. The size and form of the house may be adapted to the needs and resources of the school and the district which it serves. It may be made upon the school grounds or at the home of one of the students or school patrons. Directions for making houses may be found in Farmers' Bulletin 574, Poultry House Construction (1914).

Schools not prepared to take up poultry-house construction may have their students make such equipment as feed hoppers, nest boxes, and brood coops, either at the school or at their homes.

*Preserving eggs.*—All students, whether they are keeping poultry or not, should know how to preserve eggs. The equipment that is essential may be secured readily and brought to the school so that the work may be done as a class practicum. Full directions for three methods of preserving eggs are given on page 41 of Farmers' Bulletin 287, *Poultry Management* (1907).

## A HOME PROJECT.<sup>1</sup>

The keeping of ducks, geese, or turkeys for the profitable production of either meat or eggs is a suitable project for a special application of the principles of poultry husbandry. Only those students who are surrounded with conditions favorable to the production of any of these fowls and their sale at a profit should be encouraged to go extensively into such a project in preference to one involving common fowls. The project should be connected with the school work in a definite way. The following study outlines should prove helpful in aiding the teacher and student in correlating the home work with the work at school. The student may center his attention upon the production of eggs, either for market (in the case of ducks) or for hatching, the production of fowls for the table or for breeding purposes, or a combination of any or all of the aims above. The outlines cover the subject in a general way.

### DUCK PROJECT STUDY OUTLINE.

#### EGGS AND DUCKS FOR THE MARKET—A PRODUCTION PROJECT.

- I. Shall I raise ducks as my project?
  1. Have I a good place to keep ducks?
  2. Is there an opportunity to develop a profitable market for ducks and their eggs?
  3. Can I secure the consent and cooperation of my parents in carrying out this project?
  4. Do I like ducks?
  5. How may I secure funds to make a start?
- II. What breed shall I select?
  1. What shall be my chief aim in raising ducks?
  2. Why is the Pekin so popular as a meat fowl?
  3. What are the characteristics of other ducks considered as profitable meat producers?
  4. What are the claims made for the Indian Runner ducks as egg producers?
  5. Can I raise any of the ornamental breeds at a profit?
  6. Can I distinguish all of the breeds described in Farmers' Bulletin 697?
- III. How shall I begin my project?
  1. Shall I start with eggs, young stock, or matured fowls?
  2. How many breeders shall I buy?
  3. How many ducks should be mated with one drake?
  4. Can I select good breeding stock?
  5. Do I know of a reliable breeder of whom I can get the stock at a reasonable price?

<sup>1</sup> For directions for conducting a home project see Department Bulletin 345, *Home Projects in Secondary Courses in Agriculture*.

## IV. Can I build suitable houses and yards?

1. What is considered an ideal location for a duck farm?
2. Why is the kind of soil and the amount of slope important?
3. What essentials are to be kept in mind in arranging buildings and pens?
4. May ducks be kept successfully without water in which to swim?
5. Why is an abundant supply of drinking water essential?
6. What plan may be adopted to keep the yards in a sanitary condition where a large number of ducks are kept in a small space?
7. What type of poultry house is best suited to ducks?
8. Can I make a new house or make over an old one that will be suited to my needs?
9. How much space shall be allowed for each duck?
10. What provision shall I make for nests?

## V. How shall I hatch the eggs of ducks?

1. What conditions are essential to the production of strong, fertile eggs?
2. How long does it take the eggs of common ducks to hatch?
3. Will the ducks of breed I have selected hatch their own eggs?
4. Shall I use hens or an incubator for hatching?
5. What treatment shall I give eggs that may be dirty?
6. What treatment shall I give hens that may be lousy?
7. How shall a number of sitting hens be handled in one room?
8. How many eggs shall be given to each hen?
9. What shall I feed sitting hens?
10. Why should especial care be given to hens used to hatch duck eggs?
11. What special treatment should be given the eggs?
12. Will it pay me to use an incubator?
13. At what temperature is the incubator kept for duck eggs?
14. What special directions shall I follow in operating the machine?
15. How is moisture applied to duck eggs in an incubator?
16. How are the eggs turned and cooled?
17. How long and under what conditions should the ducklings be kept in the incubator after hatching?
18. Why is it important to test the eggs?
19. How may the infertile eggs be used?
20. Do I understand how to test eggs during incubation?

## VI. How shall I brood the ducklings?

1. Shall I use hens or brooder?
2. Why should hens with ducklings be denied free range?
3. Under what conditions are green ducks raised for the market?
4. How can I keep track of the ages of those intended to be kept for breeders?
5. At what temperature should the brooder be kept?
6. How may I tell if the brooder is comfortable?
7. Under what conditions may artificial heat be withdrawn?
8. How may brooding systems intended for chicks be adapted to ducklings?
9. What kind of brooder and brooder house will be adapted best to my needs?
10. What kind of yards shall I plan for the young ducks?

## VII. Do I understand proper methods of feeding?

1. How should rations suitable to common fowls be modified to meet the needs of ducks?
2. What is the difference between a laying ration and a maintenance ration?

3. Why are Indian Runner ducks fed laying rations throughout the year?
4. Why do not ducklings need feed for the first 36 hours?
5. What is a suitable mixture for ducklings when first fed? When 3 days old? When 7 days old?
6. How often should they be fed at these ages and as they grow older?
7. What special feed and care should be given those intended to be saved for breeding?
8. How are the young ducks fattened for market?
9. At what age are green ducks marketed?
10. What special feed and care should be given breeding ducks not kept for the production of market eggs?
11. What is a good ration for laying ducks?
12. What crops afford a source of green feed?
13. How is mash fed to ducks?
14. What special attention should be given to the supply of drinking water?
15. What quantity of mash is required by laying Pekin ducks?
16. What is the cost of keeping such a duck for one year?

#### VIII. How shall I prepare ducks for market?

1. What is the best method of killing?
2. What methods of picking are employed?
3. How is down often removed?
4. How are the ducks cooled and packed?
5. What is the average cost of picking?
6. What part of this cost is redeemed in the sale of the feathers?
7. What is the cost of the feed necessary to produce a pound of meat in green ducks?
8. What prices are secured for these ducks?
9. Will it pay me to attempt to develop a market for green ducks?

#### IX. Can I market my eggs at a profit?

1. Is there a special market for duck eggs in the district where I live?
2. Can I develop a special market for my eggs?
3. With pure-bred ducks, may I not sell some eggs for hatching at an advanced price?
4. What special precautions in care and marketing must be taken to maintain good quality and the desirable reputation which accompanies it?
5. Will it pay me to preserve my surplus eggs when the price is lowest?

### GOOSE PROJECT STUDY OUTLINE.

#### GESE AND FEATHERS FOR THE MARKET—A PRODUCTION PROJECT.

- I. Shall I raise geese as my project?
  1. Is this section suited to geese?
  2. Have I a good place to keep geese?
  3. Will I have a profitable market for the geese I raise?
  4. Is there a profitable local market for goose feathers?
  5. Do I like geese and enjoy working with poultry?
- II. How shall I get a start with geese?
  1. Shall I start with a setting of eggs or secure a pen of matured geese?
  2. How many eggs in a setting?
  3. How many geese may be mated with one gander?
  4. How can I distinguish the male and females?
  5. What other points should I keep in mind in selecting breeding stock?

## III. What breed shall I select?

1. What are the six leading breeds of geese?
2. How do they rank in size?
3. How do they rank as layers?
4. How may they be distinguished by color and other markings?
5. What is the origin of each of these breeds?
6. Which of the breeds are considered best for the market?
7. Which are the best to handle about the farm?
8. Considering all my aims and needs, which breed will serve my purpose best?

## IV. How shall I hatch the eggs of geese?

1. When is the best time to hatch goslings?
2. How are eggs which are to be used for hatching cared for?
3. What are the advantages in using hens for hatching?
4. Under what conditions will it be desirable to let the geese hatch their own eggs?
5. What is the period of incubation for the eggs of geese?
6. What special attention must be given the eggs and the hens when hens are used for hatching?
7. How many goose eggs are usually given to a hen? How many to a goose?
8. When, how, and for what purpose are the eggs tested?
9. How are the young goslings cared for at hatching time?
10. How are the hens and goslings managed after hatching?
11. What different management should goose eggs receive in an incubator to that given to eggs of hens?

## V. How shall I feed my geese and goslings?

1. Why should not goslings be fed until they are 24 to 36 hours old?
2. What would be a suitable mash for them to begin on?
3. What accessories should be supplied in addition to the food ration?
4. What would be a good ration for fattening?
5. How is the fattening ration prepared and handled by those who make a business of fattening geese for the market?
6. How are the geese handled in fattening?
7. What is a good ration for laying geese?
8. Why are pasturage and a supply of fresh water essential?
9. What may be given for roughage in the winter?

## VI. How shall I manage my breeding stock?

1. What are the essential qualities of good breeding stock?
2. At what age are they at their best for breeding purposes?
3. When should geese be mated?
4. How long may geese be kept for breeding purposes?
5. How many geese may be kept profitably on an acre of land?
6. What would be an ideal location for geese?
7. What sort of houses and yards must I make for my geese?
8. What provisions should I make for nesting?
9. Why is cleanliness extremely important?
10. How may broodiness be overcome in geese?
11. How are geese handled to the best advantage?
12. How and when are geese picked for their feathers?

## VII. How are geese prepared for market?

1. Will it pay me to buy geese from my neighbors to fatten for market?
2. What are the essential factors in successful fattening?
3. Will I have a market for any geese especially fattened by cramming?

4. How is the cramming process conducted?
5. What is the best time of the year to sell fattened geese?
6. At what age will it be most profitable to sell geese for the market?
7. How are geese killed?
8. Will my market require them scalded or dry picked?
9. What is the best method of scalding?
11. How are the geese put in condition for market after picking?
12. What is the best method of packing?
13. Can I get any points from local breeders which will aid me in my project?

## TURKEY PROJECT STUDY OUTLINE.

### RAISING TURKEYS FOR THE MARKET—A PRODUCTION PROJECT.

- I. Shall I raise turkeys as my project?
  1. How does turkey raising compare with other phases of poultry husbandry in the United States?
  2. With what class of farming does turkey raising fit best?
  3. What are the essential features of a location suitable for raising turkeys?
  4. Is the section where I live suitable for turkey raising?
  5. Have I a suitable place for rearing them?
  6. How about a local market?
  7. How do the profits compare with other phases of poultry keeping?
- II. What variety of turkeys shall I keep?
  1. What is the origin of domestic turkeys?
  2. What have domestication and selective breeding done for the turkey?
  3. What varieties are now recognized in the American Standard of Perfection?
  4. Can I recognize each variety?
  5. Which variety is the largest?
  6. Which is reputed to be the most hardy?
  7. Which is the most prolific?
  8. Which is the most domestic?
  9. Which will fill my needs best?
  10. How are geese picked to best advantage?
  10. Is there an opportunity to secure the variety I desire at a reasonable price?
  11. Shall I start by securing eggs, young stock, or birds of breeding age?
- III. What points shall I keep in mind in selecting breeding stock?
  1. Why is the selection of individual fowls equally important with the selection of variety?
  2. What may be the result of lack of care in selecting breeding stock?
  3. What are the two most important qualities to be considered?
  4. What are the points that indicate these qualities?
  5. Why are pure-bred turkeys superior to mongrels?
  6. How may I best improve a mongrel flock?
  7. What advantage will there be in having pure-bred females as well as a pure-bred male?
  8. Can I secure good prices for eggs for hatching?
  9. What are the objections to crossing varieties?
  10. What are the best ages for breeding stock?
  11. How many hens may be put with one tom?
  12. What is the best time of the year to secure breeding stock?

## IV. How shall I manage my breeding stock?

1. Why is it better not to allow two toms together with a flock?
2. What is the best plan for managing 25 or 30 hens with two toms?
3. Why is it best to give turkeys free range?
4. What provision should be made for exercise if turkeys are confined?
5. How may they be trained so that they may be driven easily?
6. What are the essentials of a fence suitable for inclosing turkeys?
7. How may turkeys be prevented from flying over fences?
8. Why should turkeys be confined until they have begun to lay?
9. In what condition of flesh should breeding stock be kept?
10. What is the nature of the food gleaned by turkeys on range?
11. What is suitable supplementary feeding for birds on range?
12. Why is it necessary to supplement grain with some coarse vegetable foods and with some animal products in winter?
13. How may green feed be supplied best to birds confined in the summer?
14. Why are wheat and oats better for breeding stock than corn?
15. Why are grit, charcoal, and oyster shells essential throughout the breeding season?
16. What housing do turkeys need in the section where I live?
17. How may dampness be guarded against?
18. What are the mating habits of turkeys?
19. How many eggs are usually laid in the first litter?
20. How may other litters be secured?
21. How may turkeys be broken of broodiness?
22. Why is it advisable to hatch turkeys late?
23. What are the habits of turkey hens in respect to laying?
24. How may a hidden nest be found?
25. What is the best sort of nest for turkeys?
26. Why should eggs be gathered daily?
27. How may eggs be kept best for hatching?

## V. How shall I hatch turkey eggs?

1. Shall I use turkey hens, common hens, or an incubator to hatch turkey eggs?
2. When may it be necessary to use common hens or an incubator in connection with turkey hens?
3. In such a case how may the turkey hens be induced to act as mothers?
4. What is one of the chief causes of a poor hatch?
5. How many eggs may turkey hens and common hens cover properly?
6. What is the best sort of nest and coop for hatching turkey eggs?
7. How may I manage a number of hens sitting at one time?
8. How may a turkey hen be established in hatching eggs in a new nest?
9. What are the feeding habits of turkeys at hatching time, and what precautions should be taken that they may secure sufficient food?
10. Why are provisions for exercise and dusting very important?
11. What special means of prevention and cure may be used for lice on sitting hens?
12. When should I expect the hatch to be completed?

## VI. What can I do to raise a large percentage of the young turkeys?

1. When is the loss of young poult greatest?
2. What are the chief causes of the high mortality of young poult?
3. What are the reasons for using a brood coop?
4. What are the essentials of a good brood coop?
5. How are the hen and poult managed in the coop?

6. Why is it often impossible for the young pourets to secure all of the exercise they need?
7. What provisions should be made for keeping the young pourets dry and warm on free range?
8. Why is the turkey hen the best mother for pourets?
9. Why is it advisable to turn two or three hens with broods of the same age together on a range?
10. Why is there apt to be more danger of overfeeding in confinement than on free range?
11. Why do pourets need no food for the first two days?
12. What is the best food for them to begin on?
13. What are the feeds for young pourets used by successful turkey raisers?
14. Which of these feeds will be the most satisfactory and economical for me to use?
15. What provision must be made for green feed?
16. What other accessories are needed along with the feed?
17. Why should the hen be confined for a few days?
18. Why should the pourets be fed outside the coop?
19. At what age and by what means may I tell the males from the females?
20. What indication may I have of the age of turkeys?
21. How soon do turkeys begin to roost?
22. What provision should I make for their roosting and how may I get them to use the roosting place provided?
23. What are the essential features of care and feeding of the growing pourets on summer range?
24. How may the young turkeys be kept from wandering over too wide a range?

#### VII. How may I protect my turkeys from disease?

1. What is the distinction between an infectious disease and a noninfectious ailment?
2. What conditions are favorable to blackhead?
3. What are the symptoms of blackhead?
4. How may its spread in the flock be prevented?
5. What general measures of prevention should be taken?
6. What are the indications of chicken pox?
7. How may chicken pox be treated?
8. What conditions are favorable to roup?
9. What are the symptoms of roup?
10. How may infected birds be treated for roup?
11. Why will it not pay to attempt treatment of bad cases of roup and other infectious diseases?

#### VIII. How may I fatten my turkeys for market?

1. Why is it better to work into a fattening ration gradually?
2. What ill effect follows a sudden change to a heavy feeding of corn?
3. Why is corn more fattening than wheat and oats?
4. Why is crate fattening or any form of confinement not successful in fattening turkeys?
5. Of what value are nuts and other food picked up on the range?
6. Will it pay me to buy turkeys for fattening?
7. Why are turkey males harder to fatten than the females?
8. What advantage is there in caponizing the males?
9. Will it pay me to attempt to caponize my extra toms?
10. Do I know how to caponize?

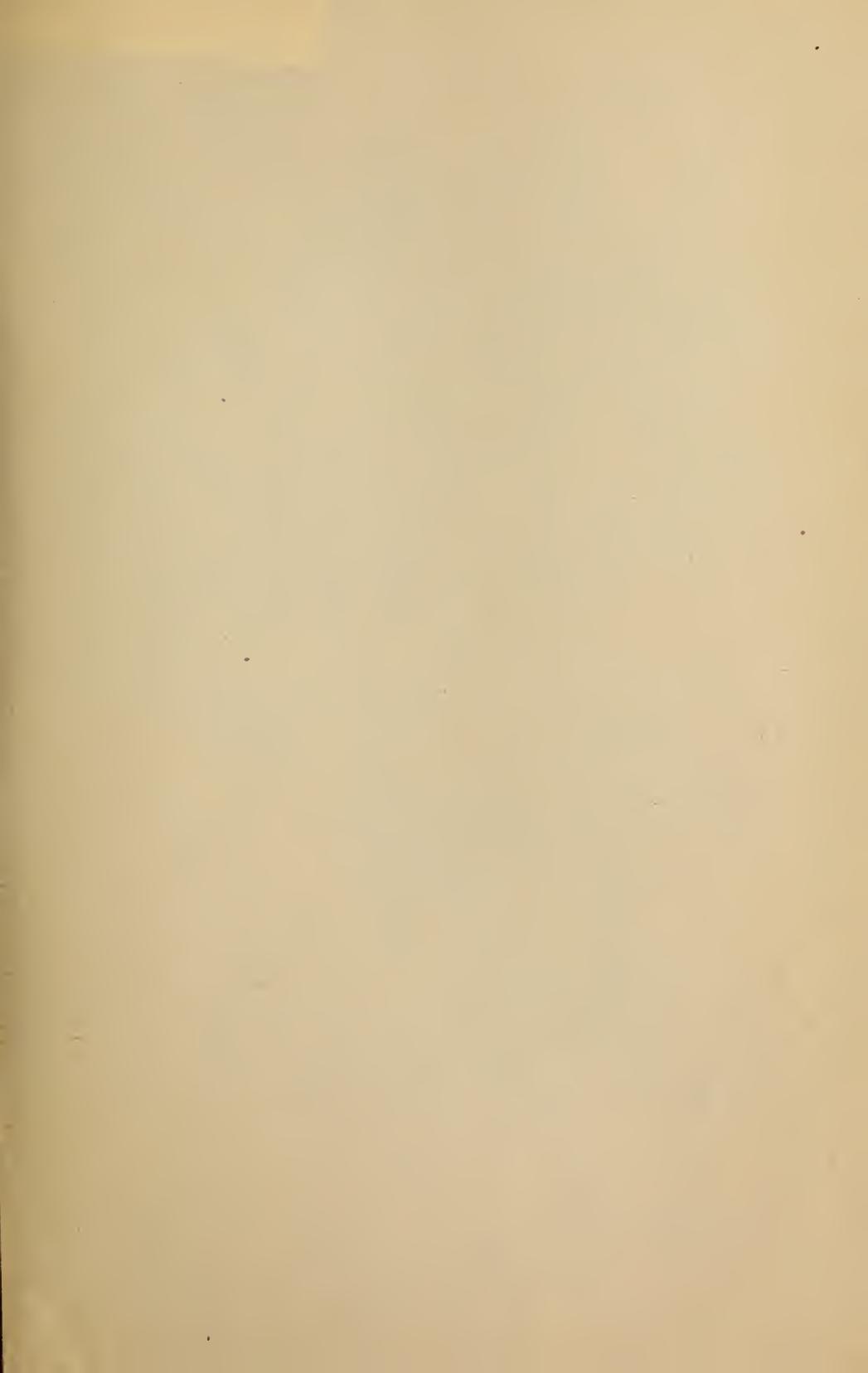
## IX. How shall I market my turkeys?

1. Shall I sell my turkeys alive or dressed?
2. Why should turkeys be deprived of feed for a day before killing?
3. Do I know the details of killing and picking turkeys in a proper way?
4. Why should turkeys be cooled after killing?
5. What will be the best method for me to use in cooling my turkeys for market?
6. Shall I sell my turkeys in a local market or ship them?
7. What advantages may be gained from cooperation in marketing?
8. Will it be possible for me to secure and fill special orders for high-grade stock?
9. Will it be possible for me to secure higher prices for some of my birds as breeding stock?

**FARMERS' BULLETINS RELATING TO POULTRY HUSBANDRY.**

51. Standard Varieties of Chickens.
234. The Guinea Fowl.
287. Poultry Management.
355. A Successful Poultry and Dairy Farm.
445. Marketing Eggs Through the Creamery.
452. Capons and Caponizing.
528. Hints to Poultry Raisers.
530. Important Poultry Diseases.
562. The Organization of Boys' and Girls' Poultry Clubs.
574. Poultry House Construction.
585. Natural and Artificial Incubation of Hens' Eggs.
594. Shipping Eggs by Parcel Post.
624. Natural and Artificial Brooding of Chickens.
656. The Community Egg Circle.
682. A Simple Trap Nest for Poultry.
684. Squab Raising.
697. Duck Raising.
767. Goose Raising.
791. Turkey Raising.
806. Standard Varieties of Chickens. I. The American Class.

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